WHAT IS CLAIMED IS:

1. A method for configuring a transmission chain in a 3GPP2 system in a process for mapping an information bitstream of a data rate on a physical layer, comprising:

channel coding information bitstreams with bit rates different from each other into one of turbo codes and convolution codes having a value inverse of 1/coding rate; and

at least one of repeating coded bits of the bitstream when the channel coded bitstream is smaller than a desired interleaving size, and puncturing bits of the coded bitstream when the channel coded bitstream is greater than the desired interleaving size, to match the channel coded bitstream to the interleaving size.

2. The method of claim 1, wherein the inverse of the coding rate is fixed to 5 when the information bitstream is channel coded into the turbo code.

3. The method of claim 2, wherein the information bitstream has a length greater than 384.

4. The method of claim 2, wherein the information bitstream includes one of error detection bit units selected from 6, 8, 12, and 16 bit units.

5. The method of claim 1, wherein a (k)th bit of the symbol repeated bitstream is predicted from a ($\left\lfloor \frac{kL}{N} \right\rfloor$)th bit of the information bitstream, wherein 'L' denotes a length of the channel coded information bitstream, 'N' denotes an interleaving size, 'k' denotes an integer increasing from '0' to 'N-1', and 'N' is greater than 5I, wherein 'I' denotes the length of the information bitstream.

6. The method of claim 1, wherein the inverse of the coding rate is any one of 2, 3, 4, and 5 depending on a ratio of a length of the information bitstream and a desired size of interleaving when the information bitstream is channel coded into the turbo codes.

7. The method of claim 6, wherein the inverse of the coding rate is 3 if $2I<N<3I$, 4 if $3I<N<4I$, and 5 if $4I<N<5I$, wherein 'N' is the interleaving size and 'I' is the length of the information bitstream.

8. The method of claim 1, wherein the channel coded bitstream is punctured in bit group units each having an information bit of the information bitstream and at least one parity bits added to the information bit, wherein a number of parity bits is equal to an inverse of (the coding rate − 1).

9. The method of claim 8, wherein the bit groups have indices from '0' to a difference of a length of the information bitstream – 1, and are sorted into two or three bit group parts different from one another according to the indices, and wherein particular bit groups in each bit group part are enabled for puncturing.

10. The method of claim 9, wherein each of the bit group parts includes 'J' bit groups, where 'J' denotes a greatest integer not greater than a value obtained by dividing the length of the information bitstream by a number of the bit group parts.

11. The method of claim 10, wherein puncturing of the bit groups having indices of 'uj' and 'u(j+1)-1' are enabled when a remainder of '(K*j)/J' is smaller than 'K', where 'j' denotes an index increasing from '0' to 'J-1' and 'u' denotes a number of the bit group parts.

12. The method of claim 9, wherein the number of bits to be punctured in each of the bit group parts is a greatest integer 'K' not greater than a value obtainable by dividing a difference of the length of the channel coded bitstream minus the interleaving length by the number of bit group parts.

13. The method of claim 12, wherein puncturing of the bit groups having indices of 'uj' and 'u(j+1)-1' are enabled when a remainder of '(K*j)/J' is smaller than 'K', where 'j' denotes an index increasing from '0' to 'J-1' and 'u' denotes a number of the bit group parts.

14. The method of claim 13, wherein the enabled bit groups in each part have puncturing bits different from one another.

15. The method of claim 13, wherein a number of bit groups is equal to a remainder obtainable by dividing the length of the channel coded output bitstream by the number of enabled bit group parts according to the puncturing pattern the same as that of the bit group with an index 'uj' regardless of the index.

16. The method of claim 9, wherein the bit group with an index of a difference of the length of information bitstream minus 1 is enabled for puncturing according to a puncturing pattern different from particular bit groups enabled in each of bit group parts if the length of the channel coded bitstream is of an odd number.

17. The method of claim 9, wherein the bit groups as many as equal to a remainder obtainable by dividing the length of the channel coded output bitstream by the number of bit group parts are enabled according to the puncturing pattern different from the particular enabled bit groups.

18. The method of claim 8, wherein a number of bits to be punctured in each of the enabled bit groups is one of 2 and 4.

19. The method of claim 18, wherein the number of bits to be punctured in each of the enabled bit groups is 2 when the inverse of coding rate is one of 3 and 5.

20. The method of claim 1, wherein the inverse of the coding rate is one selected from 2, 3, 4, and 6 depending on a length of the information bitstream and the interleaving size in a case the information bitstream is coded into the convolutional codes.

21. The method of claim 20, wherein the information bitstream includes one of error detection bit units selected from 6, 8, 12, and 16 bit units.

22. The method of claim 19, wherein the inverse of the coding rate is an integer obtainable by rounding a value obtainable by dividing the interleaving size by the length of the information bitstream.

23. The method of claim 22, wherein the value is rounded down.

24. A transmission chain for a communication system, comprising:

an encoder configured to receive one of a variable rate code stream and a flexible rate code stream as an input stream and generate a coded bit stream;

a rate matcher, coupled to receive the coded bit stream and match the coded bit stream to a prescribed rate by at least one of puncturing and repeating the coded bit stream; and

an interleaver, coupled to receive the punctured bit stream, wherein a rate of the encoder is reduced to a prescribed rate when a rate of the input stream is reduced by a prescribed amount.

25. The device of claim 24, wherein a size of the interleaver is equal to a size of the punctured bit stream, and is fixed to a prescribed interleaver size.

26. The device of claim 24, wherein the rate of the encoder is one of 1/2, 1/3, 1/4, and 1/5.

27. The device of claim 26, wherein 'N' is a size of the interleaver, 'I' is a number of information bits per frame, and a rate of the encoder is 1/3 when $8/3<N/I\leq 3$, 1/4 when $3<N/I\leq 4$, and 1/5 when $N/I>4$.

28. The method of claim 24, wherein the encoder is a turbo coder with a maximum rate of 1/5.

29. The method of claim 24, wherein when an Enhanced Rate Algorithm Mode (ERAM) is disabled, a 'k'-th output of the rate matcher is the lower bound of the (kL/N)th input symbol, wherein 'N' is a size of the interleaver, k ranges from '0' to N-1, and 'L' is a number of encoded bit symbols outputted by the encoder.

30. The method of claim 24, wherein when an Enhanced Rate Algorithm Mode (ERAM) is enabled, symbol puncturing is enabled for groups having indices 2j and 2j+1 if $(j \cdot k) \bmod J < K$, wherein 'I' is a number of information bits per frame,'J' is a lower bound of I/2, 'N' is a size of the interleaver, 'K' is a lower bound of (L-N)/2, and wherein each of the code symbol groups comprises L/I encoded bits.

31. The method of claim 30, wherein a pattern used to puncture data code symbol group 'i' for a 1/3 turbo code rate when $2I < N \leq 3I$ is given by $P_{(i \bmod 2)}$, wherein 'i' is an index of the code symbol groups and ranges from 0 to I-1, and wherein the code pattern is '110' for P_0 and '101' for P_1.

32. The method of claim 30, wherein a pattern used to puncture tail code symbol group 'i' for a 1/3 turbo code rate when $2I < N \leq 3I$ is given by $P_{(i \bmod 2)}$, wherein 'i' is an index of the code symbol groups and ranges from 0 to I-1, and wherein the code pattern is '101' for P_0 and '101' for P_1.

33. The method of claim 30, wherein a pattern used to puncture data code symbol group 'i' for a 1/4 turbo code rate when $3I < N \leq 4I$ is given by $P_{(i \bmod 2)}$, wherein 'i' is an index of the code symbol groups and ranges from 0 to I-1, and wherein the code pattern is '1011' for P_0 and '1110' for P_1.

34. The method of claim 30, wherein a pattern used to puncture tail code symbol group 'i' for a 1/4 turbo code rate when $3I < N \leq 4I$ is given by $P_{(i \bmod 2)}$, wherein 'i' is an index of the code symbol groups and ranges from 0 to I-1, and wherein the code pattern is '1011' for P_0 and '1011' for P_1.

35. The method of claim 30, wherein a pattern used to puncture data code symbol group 'i' for a 1/5 turbo code rate when $4I < N \leq 5I$ is given by $P_{(i \bmod 2)}$, wherein 'i' is an index of the code symbol groups and ranges from 0 to I-1, and wherein the code pattern is '11101' for P_0 and '11011' for P_1.

36. The method of claim 30, wherein a pattern used to puncture tail code symbol group 'i' for a 1/5 turbo code rate when $4I < N \leq 5I$ is given by $P_{(i \bmod 2)}$, wherein 'i' is an index of the code symbol groups and ranges from 0 to I-1, and wherein the code pattern is '11011' for P_0 and '11011' for P_1.

37. A turbo encoder for a communication system, comprising:

a first encoder, coupled to receive an input data bit and generate a first data bit and first and second parity bits; and

a second encoder to receive the first data bit and generate a second data bit and third and fourth parity bits, wherein the second data bit is eliminated, and the remaining bits are outputted as a coded bitstream, and wherein a rate of the encoder is '1/5'.

38. The encoder of claim 37, wherein the output coded bitstream is formed of a series of generated bits arranged in a pattern of the first data bit, the first parity bit, the second parity bit, the third parity bit, and the fourth parity bit.

39. The encoder of claim 38, wherein the output coded bitstream alternates between the first encoder and the second encoder.

40. The encoder of claim 38, wherein a tail pattern of the output bits follows the output bit stream as a termination code, wherein the tail pattern is different from the pattern of the coded bit stream.

41. The encoder of claim 40, wherein the pattern of the tail code is arranged as six consecutive streams, a first three streams having 3 repetitions of the first data bit, one first parity bit and one second parity bit, and a second three streams having 3 repetitions of the

second data bit, one third parity bit and one fourth parity bit, wherein the first and second data bit have the same value.

42. The method of claim 41, wherein the second three streams has three repetitions of the first data bit instead of the second data bit.

43. A method of matching a data rate in a communication system, comprising:

receiving one of a variable rate bitstream and a flexible rate bitstream at a first rate to be encoded;

modifying a rate of an encoder to a prescribed rate to minimize an amount of repetitions that need to occur in a rematching device and generating an encoded bitstream; and

performing one of repetition and puncturing of the encoded bitstream to generate a rate matched bit stream.

44. The method of claim 43, further comprising determining when a rate of the input bitstream has changed from the first rate and modifying the rate of the encoder in accordance with the rate of the input bitstream.

45. The method of claim 43, wherein the prescribed rate of the encoder is one of 1/2, 1/3, 1/4, and 1/5.

46. The method of claim 45, wherein 'N' is a size of the interleaver, 'I' is a number of information bits per frame, and a rate of the encoder is 1/3 when $8/3<N/I\leq 3$, 1/4 when $3<N/I\leq 4$, and 1/5 when $N/I>4$.

47. The method of claim 43, wherein the encoder is a turbo encoder with a maximum rate of 1/5.

48. The method of claim 43, wherein when an Enhanced Rate Algorithm Mode (ERAM) is disabled, a 'k'-th output of the rate matcher is the lower bound of the (kL/N)th input symbol, wherein 'N' is a size of the interleaver, k ranges from '0' to N-1, and 'L' is a number of encoded bit symbols outputted by the encoder.

49. The method of claim 43, wherein when an Enhanced Rate Algorithm Mode (ERAM) is enabled, symbol puncturing is enabled for groups having indices 2j and 2j+1 if $(j\cdot k) \bmod J < K$, wherein 'I' is a number of information bits per frame,'J' is a lower bound of I/2, 'N' is a size of the interleaver,'K' is a lower bound of (L-N)/2, and wherein each of the code symbol groups comprises L/I encoded bits.

50. The method of claim 49, wherein a pattern used to puncture data code symbol group 'i' for a 1/3 turbo code rate when $2I < N \leq 3I$ is given by $P_{(i \bmod 2)}$, wherein 'i' is an index

of the code symbol groups and ranges from 0 to I-1, and wherein the code pattern is '110' for P_0 and '101' for P_1.

51. The method of claim 49, wherein a pattern used to puncture tail code symbol group 'i' for a 1/3 turbo code rate when $2I < N \leq 3I$ is given by $P_{(i \bmod 2)}$, wherein 'i' is an index of the code symbol groups and ranges from 0 to I-1, and wherein the code pattern is '101' for P_0 and '101' for P_1.

52. The method of claim 49, wherein a pattern used to puncture data code symbol group 'i' for a 1/4 turbo code rate when $3I < N \leq 4I$ is given by $P_{(i \bmod 2)}$, wherein 'i' is an index of the code symbol groups and ranges from 0 to I-1, and wherein the code pattern is '1011' for P_0 and '1110' for P_1.

53. The method of claim 49, wherein a pattern used to puncture tail code symbol group 'i' for a 1/4 turbo code rate when $3I < N \leq 4I$ is given by $P_{(i \bmod 2)}$, wherein 'i' is an index of the code symbol groups and ranges from 0 to I-1, and wherein the code pattern is '1011' for P_0 and '1011' for P_1.

54. The method of claim 49, wherein a pattern used to puncture data code symbol group 'i' for a 1/5 turbo code rate when $4I < N \leq 5I$ is given by $P_{(i \bmod 2)}$, wherein 'i' is an index

of the code symbol groups and ranges from 0 to I-1, and wherein the code pattern is '11101' for P_0 and '11011' for P_1.

55. The method of claim 49, wherein a pattern used to puncture tail code symbol group 'i' for a 1/5 turbo code rate when $4I < N \leq 5I$ is given by $P_{(i \bmod 2)}$, wherein 'i' is an index of the code symbol groups and ranges from 0 to I-1, and wherein the code pattern is '11011' for P_0 and '11011' for P_1.

56. A communication device capable of matching a data rate in a communication system, comprising:

means for receiving one of a variable rate bitstream and a flexible rate bitstream at a first rate to be encoded;

means for modifying a rate of an encoder to a prescribed rate to minimize an amount of repetitions that need to occur in a rematching device and generating an encoded bitstream; and

means for performing one of repetition and puncturing of the encoded bitstream to generate a rate matched bit stream.

57. The device of claim 56, further comprising:

means for determining when a rate of the input bitstream has changed from the first rate; and

means for modifying the rate of the encoder in accordance with the rate of the input bitstream.

58. The device of claim 56, wherein the prescribed rate of the encoder is one of 1/3, 1/4, and 1/5.

59. The device of claim 58, wherein 'N' is a size of the interleaver, 'I' is a number of information bits per frame, and a rate of the encoder is 1/3 when $8/3<N/I\leq 3$, 1/4 when $3<N/I\leq 4$, and 1/5 when $N/I>4$.

60. The device of claim 56, wherein the encoder is a turbo encoder with a maximum rate of 1/5.

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